

REMARKS

This application has been reviewed in light of the final Office Action dated July 6, 2007. Claims 1-7 are pending, with Claim 1 in independent form. Claim 4 has been cancelled by this Amendment without prejudice or disclaimer of the subject matter presented therein. Claim 1 has been amended to include a more specific version of the features originally present in now-cancelled Claim 4. Favorable reconsideration is respectfully requested.

Claims 1-3 and 5 stand rejected under 35 U.S.C. §102(b) as allegedly anticipated by U.S. Patent Publication No. 2002/0140843 (Tretter et al.). Now-cancelled Claim 4 was rejected under 35 U.S.C. §103(a) as allegedly unpatentable over U.S. Patent Publication No. 2002/0140843 (Tretter et al.), in view of "Using Bayesian neural networks to classify segmented images" – IEEE – July 1997, pages 268-273 (Vivarelli). Claim 6 stands rejected under 35 U.S.C. §103(a) as allegedly unpatentable over the Tretter et al. publication in view of U.S. Patent No. 7,020,330 (Schroder et al.). Claim 7 stands rejected under 35 U.S.C. §103(a) as allegedly unpatentable over the Tretter et al. publication as modified by the Schroder et al. Patent, and further in view of the Cooper article ("A novel approach to color cast detection and removal in digital images" - SPIE - Jan. 2000, vol. 3963, pages 167-177). Applicants respectfully submit that the claims are patentable over the rejecting references taken separately or in any proper combination for at least the following reasons.

Independent Claim 1 now requires a method for scene classification of a digital image including the steps of: (a) extracting one or more pre-determined camera metadata tags from the digital image; (b) obtaining an estimate of image class of the digital image based on (1) the extracted camera metadata tags and not (2) image content features, thereby providing a metadata-based estimate; (c) obtaining, separately from the metadata-based estimate, another estimate of image class of the digital image based on (1) image content features and not (2) the extracted camera metadata tags, thereby providing an image content-based estimate; and (d) producing a final estimate of image class of the digital image based on a combination of the metadata-based estimate and the image content-based estimate, wherein the combination in step (d) is obtained by using a Bayesian network configured to produce the final estimate of image class with evidence missing.

A notable feature of Claim 1 is the use of a Bayesian network configured to produce the final estimate of image class with evidence missing. (It should be noted that original Claim 4 merely required that a Bayesian network be used). Although Claim 1 is not so limited, page 8, lines 8-11 of the specification, states that this arrangement “is ideal when dealing with metadata, because some tags, e.g., subject distance, are often not given a value by many camera manufacturers.” Additional support for this feature can be found in the specification at least at page 9, line 26 to page 10, line 7.

The Office Action cites the Vivarelli article as allegedly combinable with the base reference (the Tretter et al. publication) to teach original Claim 4’s use of a Bayesian network to obtain the combination of estimates recited in Claim 1’s step (d). However, as set forth in the accompanying Declaration Under 37 C.F.R. §1.132 by Jiebo Luo, an inventor of the present application, the Vivarelli article, despite its use of the word “Bayesian” in its title, is understood to teach an artificial neural network that requires a complete input set for computation. Similarly, the Tretter et al. publication is understood to use a neural network to perform its scene classification and, therefore, also is understood to require a complete input set for computation.

Accordingly, the neural networks of the Vivarelli article and the Tretter et al. publication both are not configured to address the problem of missing metadata. In particular, Applicants recognized that different camera manufacturers provide different metadata. Neural networks are not configured to address this problem because they require a complete set of expected input to operate, and do not operate when information from the expected set of input is missing. In contrast, Claim 1 addresses this problem because it requires the use of a Bayesian network configured to produce the final estimate of image class with evidence missing.

Therefore, Applicants respectfully submit that neither the Vivarelli article or the Tretter et al. publication teach or suggest Claim 1’s use of a Bayesian network configured to produce the final estimate of image class with evidence missing. No other reference is cited as teaching this feature of Claim 1.

In anticipation of the Examiner substituting the Vivarelli article with a reference that does teach a Bayesian network, Applicants concede that Bayesian networks in and of themselves are prior art. However, applicants

respectfully note that the Tretter et al. publication has not been found to acknowledge the problem of classifying images when different image capture devices record different metadata. Without acknowledging this problem or any other problem that would lead one of skill in the art to use a Bayesian network to classify images at least by considering metadata as required by Claim 1, Applicants respectfully submit that it would not be obvious to modify the Tretter et al. publication to use a Bayesian network. In this regard, Applicants respectfully request caution against the use of applicants' own recognition of the problem of different cameras having different metadata fields as hindsight to modify the Tretter et al. publication to include the use of Bayesian networks as recited in Claim 1.

For at least the above discussed reasons, Applicants respectfully submit that Claim 1 is patentable over the rejecting references taken separately or in any proper combination.

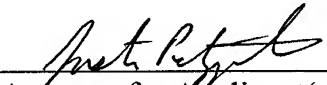
The other claims in this application depend from one of the independent claims discussed above and, therefore, also are submitted to be patentable for at least the same reasons. Since each dependent claim is deemed to define an additional aspect of the invention, individual reconsideration of the patentability of each claim on its own merits is respectfully requested.

This Amendment After Final is believed to place this application in condition for allowance and, therefore, its entry is believed proper under 37 C.F.R. §1.116. Accordingly, entry of this Amendment After Final Action, as an earnest effort to advance prosecution and reduce the number of issues, is respectfully requested. Should the Examiner believe that issues remain outstanding, it is respectfully requested that the Examiner contact Applicants' undersigned attorney in an effort to resolve such issues and advance the case to issue.

No petition to extend the time for response to this Office Action is deemed necessary for the present Amendment because the three-month response date of October 6 was a Saturday, and Monday, October 8 was Columbus Day.

In view of the foregoing amendments and remarks, Applicants respectfully request favorable reconsideration and the allowance of the present application.

Respectfully submitted,



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If the Examiner is unable to reach the Applicant(s) Attorney at the telephone number provided, the Examiner is requested to communicate with Eastman Kodak Company Patent Operations at (585) 477-4656.